Remarks

Claims 2 through 8 remain active in this case and are set forth on the preceding pages.

The Examiner has rejected the active claims 2–5 and 8 as being unpatentably obvious in view of Drogin (U.S. Patent 4,851,854) as combined with Duluk, Jr. et al. (U.S. Patent 5,574,835). The rejections are respectfully traversed for the following reasons.

In claim 2, the step of "ordering ambiguous objects in subsets according to other dimensions of the multidimensional space" is said to be shown in Duluk at column 16, lines 14–19, column 19, lines 25–33, and column 21, lines 10–27. Duluk does not teach ordering of ambiguous objects, only categorizing objects — actually boundary boxes — into three categories, viz., external, internal, and ambiguous. The entries in ambiguous category are not ordered "in subsets according to other dimensions of the multidimensional space" as called for in the claim. Nowhere in the reference is there any suggestion or mention of ordering "according to other dimensions of the multidimensional space" as called for by claim 2. It is clear that the categories in the reference do not constitute a multidimensional space and further, the entries in the ambiguous category cannot be considered a multidimensional space nor its equivalent.

For these reasons, a person of ordinary skill in the art would not be led to combine the Duluk elements with the system of Drogin because such a combination would defeat the operation of Drogin as described. Even if it were possible to combine the elements as asserted by the Examiner, it would not operate in the manner claimed in claim 2.

Claim 3 is rejected by the Examiner as being taught by Drogin which is alleged to include the step of ascertaining a predetermined threshold value based on known errors of position measurements at column 6, lines 40–48, column 8, lines 20–25, and column 10, lines 1–10. This rejection is traversed on the grounds that the reference does not show a "determining step" including "the step of ascertaining a predetermined threshold value based on known errors of position measurements." The determining step in the reference is according to how many words of memory are required, which under no possible interpretation can be equivalent to "a predetermined threshold value based on known errors of position measurements" as called for in claim 3.

In rejecting claim 4, the Examiner states that Drogin, as modified by Duluk, teaches the method of including an initial step of "selecting as the first dimension of a multidimensional coordinate system that dimension along which separation of objects exhibits the greatest dispersion." This position is not supported by the references which sorts on the basis of an identification and then stores first and second parameters from emitter signals. No attempt is made to compute the dispersion among any of the parameters, and there is no teaching, suggestion, or showing of such a step.

The rejection of claim 5 is based on an interpretation that Drogin, as modified, teaches the grouping steps including the step of "determining ambiguities among coordinate values according to whether separation of targets is less than any plurality of predetermined threshold values." This is respectfully traversed for the reason that no combination of Drogin with Duluk results in such a step at all. Duluk applies a membership algorithm to determine whether a polygon is Exterior, Interior, or ambiguous. No threshold values are employed or used by the membership function. Therefore, there is no showing or suggestion of determining ambiguities among coordinate values according to whether separation of targets is less than any plurality of predetermined threshold values as called for by claim 5. The rejection lacks any suggestion of the manner in which the Drogin and Duluk references could be combined into a workable system and how such a system would perform the cited claim steps.

The Examiner rejects claim 8 on the grounds that Drogin teaches a method of sorting indicia corresponding to objects moving through a multidimensional space as claimed, but the reference fails to show "sorting assigned indicia along one coordinate axis of the multidimensional space" because there is no sorting in a multidimensional space in Drogin. The sort criteria in Drogin is according to several characteristics, and characteristics are not the equivalent of multidimensional space. It presents a display in a two-dimensional space, i.e., a pixel grid, but the sorting specifications are not based on the coordinates of the grid.

Furthermore, Drogin does not show or suggest or teach "grouping into subsets" as called for by claim 8. The reference at column 1, lines 50 – 57 describes the process of grouping PDWs by pulse repetition intervals, not by their coordinates in a multidimensional space. The stated purpose is to average the value in each group and not to order them. The claim calls for more than just "grouping

into subsets" as characterized by the Examiner, but calls for "grouping into subsets any indicia exhibiting an ambiguity along the coordinate axis," neither shown nor suggested by the reference.

The remaining steps are rejected by the Examiner for the same reasons set forth in the rejection of claim 2. The traversal thereof is the same as the traversal related to claim 2, *supra*.

The Examiner rejects claims 6 and 7 under 35 U.S.C. 103(a) as being unpatentable over Drogin in view of Duluk and further in view of Miura et al. (U.S. Patent 6,169,966).

Relating to claim 6, the Examiner argues that Muira teaches an apparatus for detecting a moving state of an object and ascertaining a predetermined threshold value based on a maximum rate of change of position of one target with respect to any other. This is traversed as being an interpretation not supported by the reference. Actually, the reference teaches — at the locations in the reference cited by the Examiner — an equation for determining a "dynamical model of the object for explaining the positional time variation," not for ascertaining a predetermined threshold. Claim 6 calls for "ascertaining a predetermined threshold value based on a maximum rate of change of position of one target with respect to any other." In Muira, the only use of a predetermined threshold is to detect when a signal from a wave-sensing device is strong enough to be selected and converted from analog to digital (via an A/D converter).

Further, the Examiner argues that a person having ordinary skill in the art could modify Drogin according to Muira to include "ascertaining a predetermined threshold value based on a maximum rate of change of position of one target with respect to any other" to provide for the moving characteristics of the object to be determined by using the positional time-variations of the object. This is not supported by the reference and is neither relevant nor applicable because ascertaining a predetermined threshold value for target velocity, i.e., rate of change of position, as called for in the claim is not the same as the moving characteristic of the object. The moving characteristic is a sum–weighted velocity and acceleration with no threshold value.

The same arguments apply to the rejection of claim 7. That is, "ascertaining one of said predetermined threshold values based on maximum rate of change of position of one object with respect to any other" as called for in claim 7 is not shown or taught in Muira. This is, a fortiori, not shown in Muira because it lacks ascertaining a "maximum rate of change" called for in the claim.

Again, there is no showing or suggestion by the Examiner nor in the references themselves of the manner of combining the references. It is not clear where Muira would be entered into the system by Drogin.

For all the above reasons, claims 2 – 8 are deemed to be allowable and this application is now in condition for allowance. Claims 3 – 7 depend from claim and are allowable for at least the same reasons. The Examiner is respectfully requested to pass this case to issue.

The applicant appreciates the Examiner's citing of further art and making it of record in the case.